

## Towards a globally harmonized air quality forecasting: GAFIS, a new WMO-GAW initiative

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Air pollution remains a severe health threat around the world. The extreme air pollution events such as dust storms or smokes immediately damage the life and properties. The World Health Organization (WHO) estimates that 9 out of 10 people breathe air containing high levels of pollutants, and seven million premature deaths are attributed to air pollution globally in a year (4.3 million indoor and 2.6 outdoor). Further, air pollution is detrimental to ecosystems and food production and impacts transport by degrading visibility. Air pollution enhances the vulnerability of climate change impacts. To take preventive mitigation measures from air pollution, air quality, and the induced atmospheric phenomena, forecasting systems with its observation and modeling components are a key element. Many meteorological and environmental centers are conducting air quality forecasting; however, air quality forecasting is missing in many parts of the world. To enable and provide science-based and operational-oriented air quality forecasting and information analysis services for various regions of the world in a globally coordinated and harmonized way tailored to the needs of society, and to mobilize various observations of GAW to carry out in-depth research combining observation and model development. World Meteorological Organization (WMO)'s Global Atmosphere Watch (GAW) program and several international organizations started a new initiative named "Global Air Quality Forecasting and Information Systems (GAFIS)." The aim of GAFIS includes to build a network for the development of good practices utilizing diverse approaches for air quality forecasting and monitoring, and enhance science and operational applications of atmospheric composition feedback in Numerical Weather Prediction. The critical elements for the success of the initiative are improving access to quality-assured air quality observations and user interaction/feedback. In this session, we introduce the state of the global air quality forecasting and prompt discussions with the research community.

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